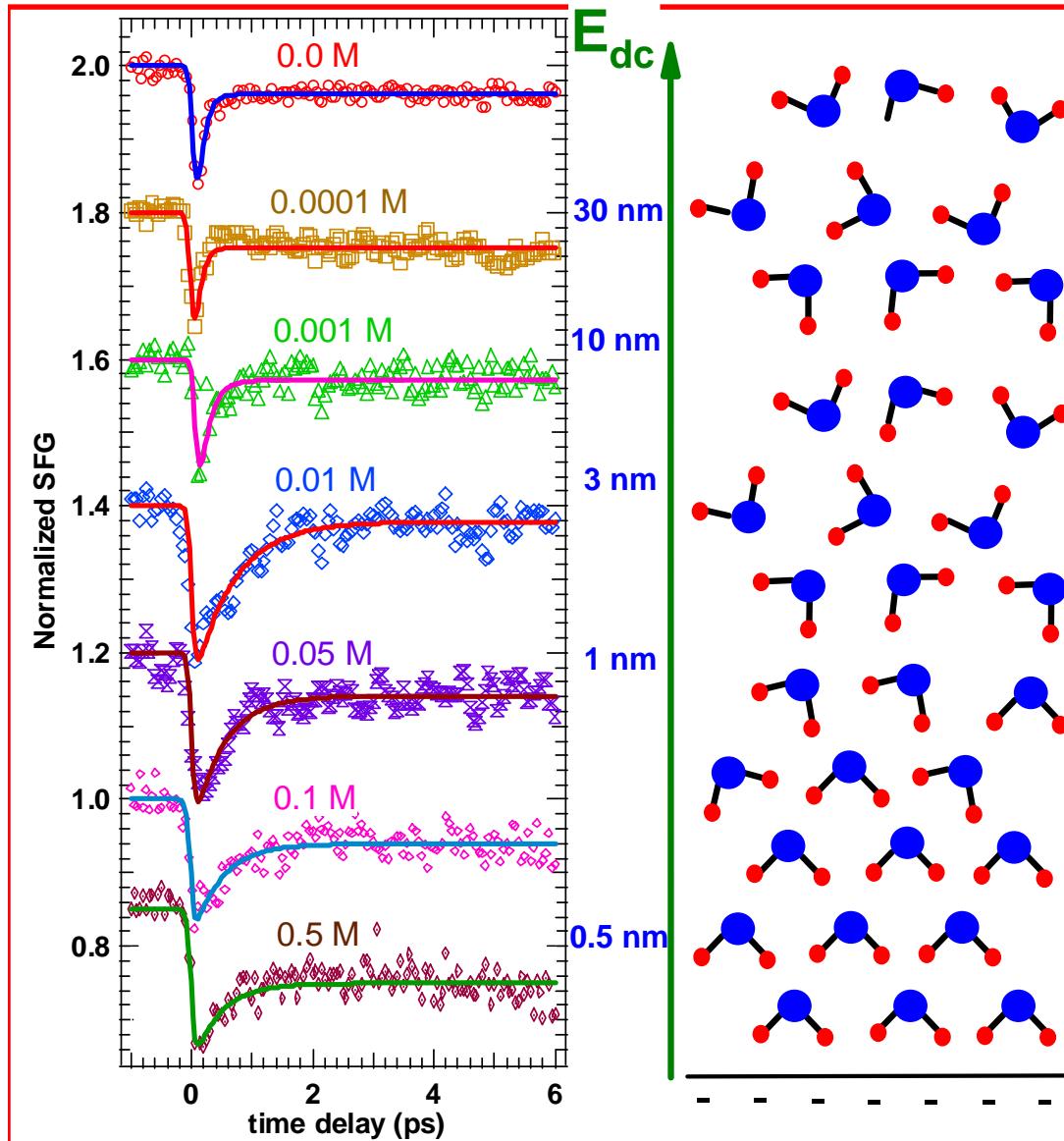


# Ultrafast Vibrational Dynamics of Water at a Solid Charged Interface

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Ultrafast Time resolved Sum Frequency Generation (tr-SFG) probes the vibrational relaxation of water at the charged and neutral silica surface.



Interfacial water vibrational dynamics is significantly different compared to the bulk and appears to depend on surface charge. However, this is a consequence of SFG sampling of near interface water that has a bulk like solvation environment.

For pure  $H_2O$ , the vibrational lifetime at the charged surface is similar to the bulk value ( $\sim 250$  fs) at low ionic strength and approaches that of the neutral surface ( $\sim 570$  fs) at  $10^{-2}$  M NaCl and greater

